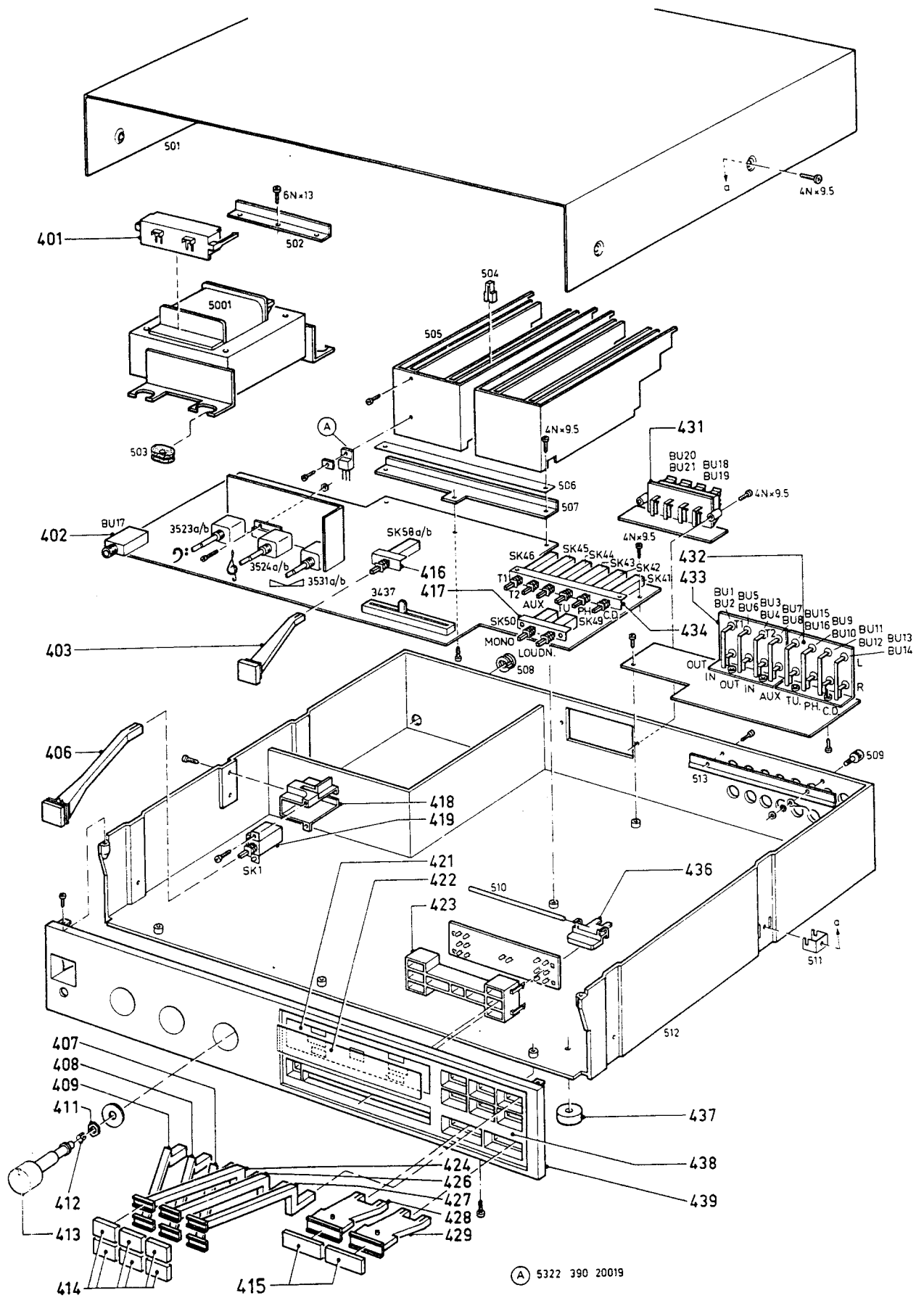


BESTELL-NR.	0041186
GERAETEBEZEICHNUNG	UNIV.-HIFI-VERSTAERK.
WARENGATTUNG	652
AUSFUEHRUNGS-NR.	001
GERAETEBESCHREIBUNG	DIN 45500 2X65 WATT
PRIVILEG	V 7456
LIEFERANTEN-NR.	291787
PREIS	399.00
KATALOG	845
GARANTIEZEIT	6
KD-SEKTOR	R
HEIM/BRINGE	WERKSTATT
BETREUUNG	EIGEN
KOSTENTRAEGER	EIGEN
REPARATURFAEHIG	JA



ZEILE	POSITION	SYM	BEZEICHNUNG	ET-NUMMER
1				
2			<u>GEHAEUSE UND BEDIENTEILE :</u>	
3				
4	403		KNOPF F. LAUTSPR. SYSTEM "A"-"B"	998 179 6
5	406		KNOPF FUER NETZSCHALTER	998 130 9
6	407		PLASTIKSTANGE, AUX-TV	998 180 4
7	408		PLASTIKSTANGE, TAPE-MONITOR 2	998 181 2
8	409		PLASTIKSTANGE, TAPE-MONITOR 1	998 182 0
9	413		KNOPF FUER DREHPOTI	998 134 1
10	414		SATZ KNOEPFE 6 STUECK	998 183 8
11	415		KNOPF MONO UND LOUDNESS	998 189 5
12	416 SK58		SCHALTER LAUTSPA. SYSTEM A/B	998 184 6
13	417 SK4950		TASTENSATZ 2-FACH	998 185 3
14	419, SK1		NETZSCHALTER	998 186 1
15	422		KLARSICHTSCHEIBE	998 140 8
16	424		PLASTIKSTANGE TUNER EINGANG	998 133 3
17	426		PLASTIKSTANGE PHONO-EINGANG	998 132 5
18	427		PLASTIKSTANGE DISC	998 131 7
19	429		PLASTIKSTANGE, LOUDNESS	998 142 4
20	434 SK41-5		TASTENSATZ 6-FACH	998 187 9
21	436		KNOPF FUER SCHIEBEREGLER	998 139 0
22	439		FRONTBLLENDE	998 188 7
23	501	C	GEHAEUSE-OBERTEIL	998 145 7
24				
25			<u>ELEKTRISCHE TEILE :</u>	
26				
27	1501, 1502		SICHERUNG 4 AT	998 191 1
28	1503		THERMO-SICHERUNG	998 155 6
29	3437		SCHIEBEREGLER 2X100K	998 150 7
30	3523, 3524		DREHPOTI 2X30K	998 151 5
31	3531		DREHPOTI 220K	998 152 3
32	3543, 3544		WIDERSTAND 0.33 OHM 3 WATT	998 157 2
33	5001		NETZTRAFO	998 190 3
34	6409-6416		LED CGV 15-3, GRUEN (RUND)	957 541 6
35	6501		GLEICHRICHTER KBL 02-7000	998 149 9
36	6502-6506		DIODE 1 N 4148	175 540 4
37	6510, 6511		ZENERDIODE ZPY 18	928 925 7
38	6519-6527		DIODE 1 N 4148	175 540 4
39	6528		ZENERDIODE BZX 79 C 15	176 843 1
40	7401		IC NJM 4558 D	950 628 8
41	7501, 7502		IC UPC 1225 H	985 453 0
42	7503, 7504		TRANSISTOR BC 546 B	923 701 7
			ERSETZT ET-NR. 175 954 7	
43	7505, 7506		TRANSISTOR BDT 95 A	998 147 3
44	7507, 7508		TRANSISTOR BDT 96 A	998 148 1
45	7509		TRANSISTOR BC 556	945 328 3
			ERSETZT ET-NR. 175 955 4	
46	7510		TRANSISTOR BC 546 B	923 701 7
			ERSETZT ET-NR. 927 111 5	
47	7514, 7515		TRANSISTOR BC 556	945 328 3
			ERSETZT ET-NR. 923 700 9	
48	7601		TRANSISTOR BC 556	945 328 3
			ERSETZT ET-NR. 175 955 4	
49				
50			ALLE ANDEREN ERSATZTEILE SIND	
51			BEI BEDARF IM KLARTEx MIT POS.	
52			ANGABE UEBER KD-TB ZU BESTELLEN.	

ENDE

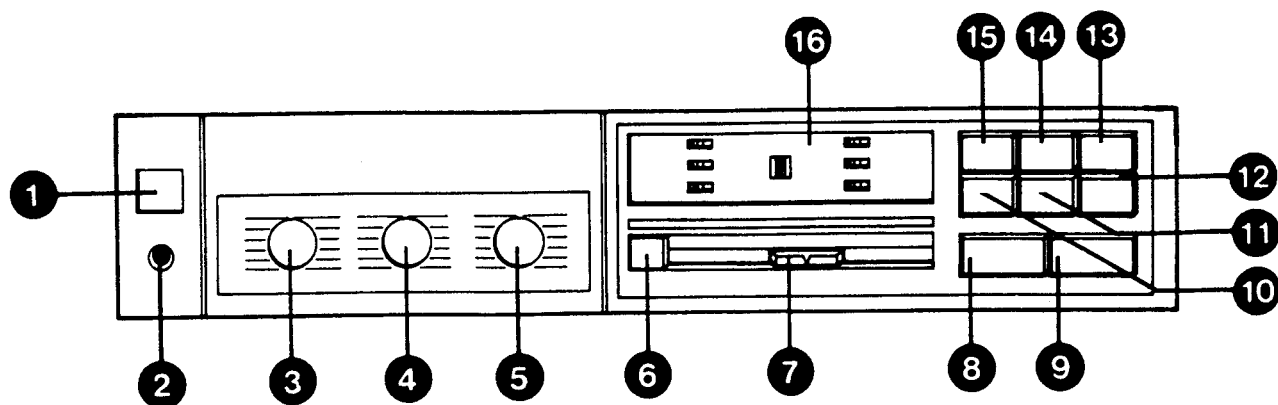


Fig. 1

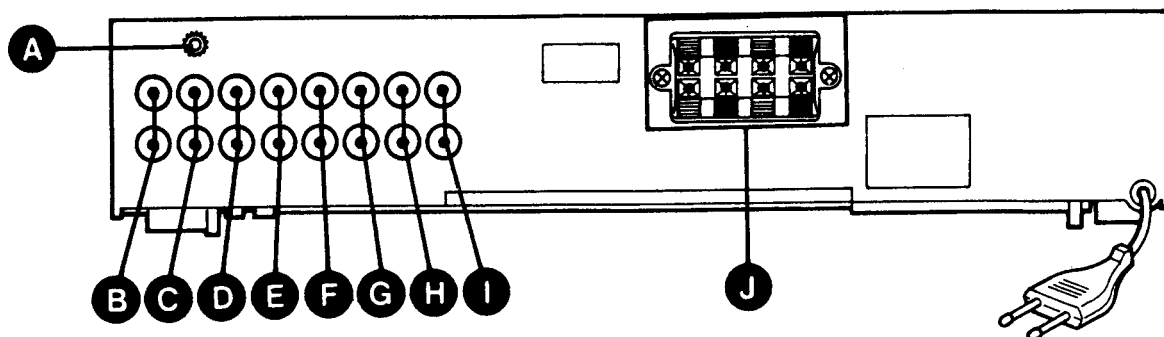


Fig. 2

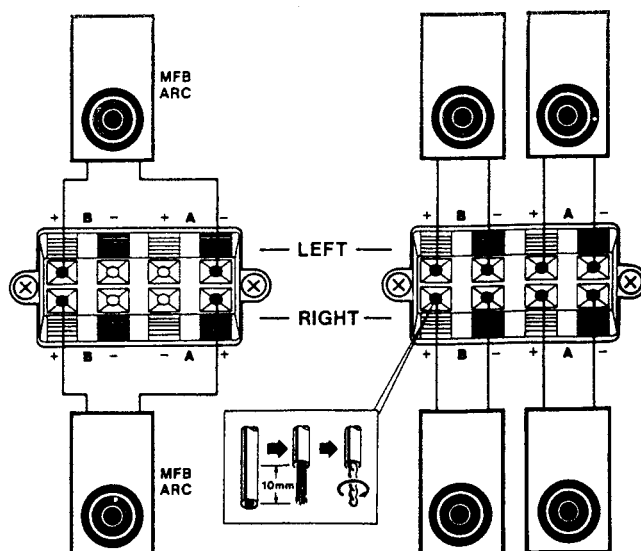
## CONTROLS, CONNECTIONS, ETC.

Fig. 1

- |   |           |
|---|-----------|
| 1 on/off switch   | SK1       |
| 2 socket for stereo headphone   | BU17      |
| 3 bass control  | 3523 a/b  |
| First press knob to release it to the out position. Adjust control by rotating, then press knob again to lock it back in.                         |           |
| 4 treble control, read remark bass control  | 3524 a/b  |
| 5 balance control, read remark bass control.  | 3531 a/b  |
| To adjust the level of the right and left channels.   |           |
| 6 loudspeaker switch  | SK58      |
| pressed down: system A + system B<br>not pressed down: system A   |           |
| 7 volume control  | 3437 a/b  |
| 8 mono switch   | SK50      |
| 9 loudness switch   | SK49      |
| Compensates for human hearing characteristics by boosting bass and treble response at low volume levels to achieve a more pleasing tonal balance. |           |
| 10 tape 1/monitor switch  | SK46      |
| 11 tape 2/monitor switch  | SK45      |
| <b>Important:</b> Because this switch is overruled by switch 10 always release switch 10 when pressing down switch 11.                            |           |
| 12 selector switch for auxiliary source/TV  | SK44      |
| 13 compact disc selector switch   | SK41      |
| 14 record player selector switch  | SK42      |
| 15 tuner selector switch  | SK43      |
| 16 display with indicators  | 6409÷6416 |

Fig. 2

- |   |         |
|---|---------|
| A phono ground terminal                   | —       |
| B input sockets for compact disc player   | BU13-14 |
| C input sockets for MD record player      | BU11-12 |
| D input sockets for tuner                 | BU9-10  |
| E input sockets for aux. source/TV        | BU15-16 |
| F input sockets for recorder T2           | BU7-8   |
| G output sockets for recorder T2          | BU3-4   |
| H input sockets for recorder T1           | BU5-6   |
| I output sockets for recorder T1          | BU1-2   |
| J terminals for loudspeakers, set A and B | BU18÷21 |
| K mains lead                              | —       |





SERVICING HINTS

Mechanical part

1. Service position

- Remove the push-button rod of the mains switch (snap-in fixation).
- Remove the 2 screws in the upper and lower sides of the front panel.
- Remove the 6 screws of the PCB.
- Put the set on its side.
- It is now possible to put the PCB with the front and the heat sinks in the service position.

Note:

Beware of the supply voltage on the heat sinks when switching on the mains voltage.

2. Demounting the front panel (item 439)

- Remove the push-button rods of the switches (snap-in fixation).
- Remove the rotary knobs.
- Remove the nuts of the rotary potentiometers.
- Remove the led PCB with led holder (snap-in fixation).
- Remove the 2 screws in the upper and lower sides of the front panel plus 1 screw in the middle of the inner side.

3. Demounting the slide knob (item 436)

- Remove the seal projections. Spare projections for remounting have been applied.
- Slide knob and guide post can now be removed by pushing the projection slightly outwards.

4. Demounting the sub-front (item 438), window (item 422 plate (item 421)

- The parts with item numbers 434, 422, 421 can be directly replaced by removing the seal projections.

Electrical part

1. Check of IC and power transistors

- Unsolder pins 11 and 12 on 7501 (7502).
- Unsolder negative feedback 3541 (3542) from emitter 7507 (7508) and connect to pin 11 7501 (7502).
- It is now possible to measure output transistors 7505, 7507 (7506, 7508) for shorts or interruptions by means of a millivoltmeter.
- At correct functioning of the IC, the direct voltage at pin 3 is +37 V, at pin 11 -0.02 V and at pin 12 +1.2 V. If the direct voltage at pin 3 is lacking, the safety circuit shall be checked.

2. Check of safety circuit

- Unsolder resistor 3567 (3568).
- The direct voltage at the collector should now be +37 V. If this voltage is present, transistor 7515 (7514) shall also be checked.

ELECTRICAL MEASUREMENTS

Measuring equipment required

- Universal meter.
- AC millivoltmeter.
- LF generator.
- Distortion meter.
- Oscilloscope.

General conditions

The measurements below relate to the left-hand channel.

The test points for the right-hand channel are given between brackets.






The following general conditions apply to the undermentioned electrical measurements, unless stated otherwise.

- Mains voltage 220 V  $\pm$  2%.
- Ambient temperature 15 to 35°C.
- Apply load resistors of 8  $\Omega$ , 1% 120 W across the left and right outputs of system A.
- Tone and balance control in mid-position.
- Perform measurements on system A.
- Switches "Mute", "Mono", "High", "Low" and "Loudness", if present, in OFF position.
- Set should be encased.




Offset voltage at the loudspeaker output

Without input signal the maximum permissible direct voltage at the output is  $\leq$  300 mV.








SUPPLY VOLTAGES








SK POSITION	 SIGNAL	 VOLUME	POWER SUPPLY	RIPPLE		QUIESCENT CURRENT	 ADJUSTING	 OUTPUT
Tape SK46		Min.	+1 +43 V $\pm$ 1,2 V -1 -43 V $\pm$ 1,2 V	214 mVtt				
	BU5 (BU6) 1 kHz	Max.	+1 +34 V $\pm$ 1,2 V -1 -34 V $\pm$ 1,2 V	1,7 Vtt				BU18-20 (BU19-21) 18,33 V 42 W
	No signal	Min.				45 mA $\approx$ 15 mV	3513 (3514)	3543 (3544)

OUTPUT POWER AND HARMONIC DISTORTION (THD)

SK POSITION	 SIGNAL	 INPUT	 OUTPUT	FTC 16,73 V 35 W	IEC 17,88 V 10 W	DIN 18,33 V 42 W
Tape SK46	Via 1 k $\Omega$	BU5 (BU6)	BU18-20 (BU19-21)			
	20 Hz			$\leq$ 0,04%		
	63 Hz				$\leq$ 0,7%	
	1 kHz			$\leq$ 0,01%	$\leq$ 0,3%	$\leq$ 0,7%
	12,5 kHz				$\leq$ 0,7%	
	20 kHz			$\leq$ 0,04%		

LF SENSITIVITY

SK POSITION	 SIGNAL	 INPUT	 TERMINATING RESISTOR	 VOLUME	 BASS	 TREBLE	LOUDNESS	 OUTPUT
Tuner CD Aux. Tape SK46	1 kHz 130-180 mV	BU5 (BU6)		MAX				BU18-20 (BU19-21) 16,73 V 35 W
Phono SK42	1 kHz 2,3-2,8 mV	BU11 (BU12)		MAX				BU18-20 (BU19-21) 16,73 V 35 W

SK POSITION							LOUDNESS	
	SIGNAL	INPUT	TERMINATING RESISTOR	VOLUME	BASS	TREBLE		OUTPUT

# LF CHARACTERISTIC TONE CONTROL








Tape SK46	Via 1 kΩ 1 kHz	BU5 (BU6)		MAX	MID	MID	OFF	BU18-20 (BU19-21) 0,775 V ≈ 0 dB			
	40 Hz				MAX	MID	OFF	+ 12 dB ± 2 dB			
					MIN	MID	OFF	−11 dB ± 2 dB			
	10 kHz				−40 dB	MID	MID	ON	+ 10 dB ± 2 dB		
					MAX	MID	MAX	OFF	+ 10 dB ± 2 dB		
						MID	MIN	OFF	−10 dB ± 2 dB		
					−40 dB	MID	MID	ON	+ 3,5 dB ± 1 dB		

# P.U. AMPLIFIER (RIAA)

Phono SK42	Via 1 kΩ 1 kHz	BU11 (BU12)	22 kΩ  BU1 (BU2)	MAX	MID	MID	OFF	BU18-20 (BU19-21) 0,775 V ≈ 0 dB
	20 Hz							BU1 (BU2) 150 mV + 16,3 dB ± 1 dB
	40 Hz							+ 16,8 dB ± 1 dB
	250 Hz							+ 6,8 dB ± 1 dB
	1 kHz							0 dB ± 1 dB
	10 kHz							−13,7 dB ± 1 dB
	20 kHz							−19,6 dB ± 1 dB

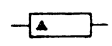
# CROSS-TALK CHANNELS

Tape SK46	Via 22 k $\Omega$ // 250 pF 500 mV	BU5 BU6)		Adjusting				BU18-20 16,73 V 35 W
	250 Hz							BU19-21 $\geq$ 35 dB
	1 kHz							BU19-21 $\geq$ 50 dB
	10 kHz							BU19-21 $\geq$ 35 dB
Phono SK42	Via 2k2 $\Omega$ 5 mV	BU11 (BU12)		Adjusting				BU18-20 16,73 V 35 W
	250 Hz							BU19-21 $\geq$ 35 dB
	1 kHz							BU19-21 $\geq$ 50 dB
	10 kHz							BU19-21 $\geq$ 35 dB

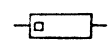
SK POSITION							LOUDNESS	
	SIGNAL	INPUT	TERMINATING RESISTOR	VOLUME	BASS	TREBLE		OUTPUT

# CROSS-TALK INPUTS

Tape SK46	Via 1 k $\Omega$ 1 kHz	BU5 (BU6)		MAX				BU18-20 (BU19-21) 16,73 V 35 W
			Tuner BU9 (BU10) 22 k $\Omega$					BU9 (BU10) $\geq$ 60 dB
			CD BU13 (BU14) 22 k $\Omega$					BU13 (BU14) $\geq$ 60 dB
			Aux BU15 (BU16) 22 k $\Omega$					BU15 (BU16) $\geq$ 60 dB
			Phono BU11 (BU12) 2k2 $\Omega$					BU11 (BU12) $\geq$ 60 dB
Phono SK42	Via 2k2 $\Omega$ 1 kHz	BU11 (BU12)		MAX				BU18-20 (BU19-21) 16,73 V 35 W
			Tuner BU9 (BU10) 22 k $\Omega$					BU9 (BU10) $\geq$ 60 dB
			CD BU13 (BU14) 22 k $\Omega$					BU13 (BU14) $\geq$ 60 dB
			Aux BU15 (BU16) 22 k $\Omega$					BU15 (BU16) $\geq$ 60 dB
			Tape BU5 (BU6) 22 k $\Omega$					BU5 (BU6) $\geq$ 60 dB



Carbon film  
0.2 W 70°C 5%



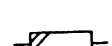
Carbon film  
0.33 W 70°C 5%



Metal film  
0.33 W 70°C 5%



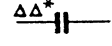
Carbon film  
0.5 W 70°C 5%



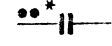
Carbon film  
0.67 W 70°C 5%



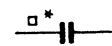
Carbon film  
1.15 W 70°C 5%



Ceramic plate  
Tuning  $\leq$  120 pF NP.0 2%  
Others -20/+80%



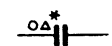
Polyester flat foil 10%



Metalized polyester  
flat film 10%



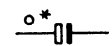
Polyester flat foil  
small size (Mylar) 10%



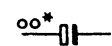
Polysterene film/foil 1%



Tubular ceramic



Miniature single



Subminiature  
tantalum  $\pm$  20%

© Chip component

\*a = 2,5 V  
b = 4 V  
c = 6,3 V  
d = 10 V  
e = 16 V  
f = 25 V  
g = 40 V  
h = 63 V  
j = 100 V  
l = 125 V  
m = 150 V  
n = 160 V  
q = 200 V  
r = 250 V  
s = 300 V  
t = 350 V  
u = 400 V  
v = 500 V  
w = 630 V  
x = 1000 V  
A = 1,6 V  
B = 6 V  
C = 12 V  
D = 15 V  
E = 20 V  
F = 35 V  
G = 50 V  
H = 75 V  
I = 80 V

